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The reaction systems described herein are designed for the efficient production of commercial quantities of particles. Various embodiments of high production rate reaction systems are described in copending and commonly assigned patent application serial No. 08/808,850 now U.S. Patent 5,958,348, entitled "Efficient Production of Particles by Chemical Reaction," filed on February 28, 1997, incorporated herein by reference. Alternative and complimentary embodiments are described herein.

At page 16, line 4-line 19, please replace the paragraph with the following:

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Improved aerosol delivery apparatuses for reactant systems are described further in copending and commonly assigned U.S. Patent Application Serial Number 09/188,670 to Gardner et al. now U.S. Patent 6,193,936, entitled "Reactant Delivery Apparatuses," incorporated herein by reference. These aerosol delivery systems can be adapted for use in reaction systems not involving laser pyrolysis. Approaches are also described therein for the adaptation of aerosol delivery by a variety of approaches with a reaction chamber elongated in one dimension in the plane perpendicular to a reactant stream. Some of these approaches include, for example, using an elongated nozzle opening, placing columns of gas jets adjacent the aerosol nozzle, employing a plurality of aerosol nozzles and applying a combination thereof.

At page 21, line 2-line 24, please replace the paragraph with the following:

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Referring to Fig. 3, an alternative embodiment of reactant delivery apparatus 102 is shown for delivery of two aerosol reactants. Aerosol generators 146, 148 deliver aerosol into delivery tubes 150, 152, respectively. Delivery tubes 150, 152 deliver reactants to two openings 154, 156, respectively. Aerosol generators 146, 148 can operate based on a variety of principles. For example, the aerosol can be produced with an ultrasonic nozzle, with an electrostatic spray system, with a pressure-flow or simplex atomizer, with an effervescent atomizer or with a gas atomizer where liquid is forced under significant pressure through a small orifice and fractured into particles by a colliding gas stream. Suitable ultrasonic nozzles can include piezoelectric transducers. Ultrasonic nozzles with piezoelectric transducers and suitable broadband ultrasonic generators are available from Sono-Tek Corporation, Milton, NY, such as model 8700-120. Suitable aerosol generators are described further in copending and commonly assigned, U.S. Patent Application

C4 Serial No. 09/188,670 to Gardner et al. now U.S. Patent 6,193,936, entitled "Reactant Delivery Apparatuses," incorporated herein by reference.

At page 47, line 29 to page 48, line 14, please replace the paragraph with the following:

C5 A collection apparatus 520 for continuous particle collection is depicted in Fig. 33. Collection apparatus 520 includes a tank 522 and a plurality of filters 524. Filters 524 block flow paths from inlet 526 to exhaust 528. Exhaust 528 generally is attached to a pump or the like to maintain the pressure with tank 522 at desired values. Reaction chamber 530 is attached to a channel 532 that connects to inlet 526. A burst of air or a mechanical vibration is delivered to filters 524 to dislodge particles. Dislodged particles fall through valve 534 for collection in a container 536. Valve 534 can be closed to allow replacement or emptying of container 536, when it is full. A second reaction chamber 540 can be attached to collection apparatus 520 by way of channel 542. The improved collection apparatus shown in Fig. 33 is described further in copending and commonly assigned U.S. Patent Application Serial Number 09/107,729 now U.S. Patent 6,270,732 to Gardner et al., entitled "Particle Collection Apparatus and Associated Methods," incorporated herein by reference.

In the Claims

Please add new claims 52 to 62 as follows:

52. (New) The particle production system of claim 23 wherein the number of reactant inlets and product outlets are equal and each reaction chamber includes one of the reactant inlets configured to direct a reactant stream within the reactant chamber.

C6 53. (New) The particle production system of claim 23 wherein at least one reaction chamber includes a plurality of reactant inlets within the reactant chamber.

54. (New) The particle production system of claim 20 wherein the plurality of reactant inlets is two reactant inlets.